

What is claimed is:

1. A lubricant for medical devices comprising:
a radiation curable silicone copolymer;
a secondary silicone component ; and
a photoinitiator.
2. The lubricant according to claim 1 further comprising a vinyl ether.
3. The lubricant according to claim 2 wherein said vinyl ether is selected from the group consisting of monovinyl ether of 2-ethyl-1-hexanol, monovinyl ether; n-dodecanol, divinyl ether; 1,4-cyclohexanedimethanol and divinyl ether; or)H-stopped poly(tetrahydrofuran).
4. The lubricant according to claim 1 wherein said radiation curable silicone copolymer is an epoxy modified polydimethylsiloxane.
5. The lubricant according to claim 1 wherein said photoinitiator is selected from the group consisting of diaryliodonium, tetrakis (pentafluorophenyl) borate salt, bis(dodecylphenyl) iodonium hexafluoroantimonate, bis(dodecylphenyl) iodonium hexafluoroarsenate and (4-octyloxyphenyl)(phenyl) iodonium hexafluoroantimonate.

6. The lubricant according to claim 1 wherein said secondary silicone component is selected from the group consisting of, polydimethylsiloxane, methyltrimethoxy silane, methyltriacetoxysilane, silicone chloride, vinyl trimethoxysilane, bis(trimethoxysilyl) propyl amine, gamma-ureidopropyl trimethoxy silane and organosilane ester tri (3-(trimethoxysilyl) propyl) isocyanurate.
7. The lubricant according to claim 1 wherein said radiation curable silicone copolymer is cured by at least one of ultraviolet light, electron beam radiation and gamma radiation.
8. A method for lubricating hypodermic needles comprising:
applying a coating mixture comprising a radiation curable silicone copolymer, a secondary silicone component, a photoinitiator and vinyl ether to a penetrating surface of a hypodermic needle; and
curing said coating by exposure to radiation.
9. The method according to claim 8 wherein said radiation is selected from the group consisting of: ultraviolet light, electron beam and gamma radiation.
10. The method according to claim 8 wherein said coating is applied to said hypodermic needle by at least one of: i) dipping, ii) spraying, iii) padding, and iv) passing through a flowing cascade.
11. The method according to claim 8 wherein said vinyl ether is selected from the group consisting of monovinyl ether of 2-ethyl-1-hexanol, monovinyl ether of n-dodecanol, divinyl ether of 1,4-cyclohexanedimethanol and divinyl ether of)H-stopped poly(tetrahydrofuran).

12. The method according to claim 8 wherein said radiation curable silicone copolymer is an epoxy silicone copolymer.
13. The method according to claim 8 wherein said photoinitiator is selected from the group consisting of diaryliodonium, tetrakis (pentafluorophenyl) borate salt, bis(dodecylphenyl) iodonium hexafluoroantimonate, bis(dodecylphenyl) iodonium hexafluoroarsenate and (4-octyloxyphenyl)(phenyl) iodonium hexafluoroantimonate.
14. The method according to claim 8 wherein said secondary silicone component is selected from the group consisting of polydimethylsiloxane, methyltrimethoxy silane, methyltriacetoxysilane, silicone chloride, vinyl trimethoxysilane, bis(trimethoxysilyl) propyl amine, gamma-ureidopropyl trimethoxy silane and organosilane ester tri (3-(trimethoxysilyl) propyl) isocyanurate.
15. The method according to claim 8 further comprising the step of packaging said hypodermic needle in a sealed case prior to radiating said coating.

16. A method for lubricating hypodermic needles comprising:

applying a first coating mixture comprising a radiation curable silicone copolymer, a secondary silicone component, a photoinitiator and a vinyl ether to a penetrating surface of a hypodermic needle;

curing said first coating by exposure to radiation; and

applying a second coating mixture comprising a secondary silicone component dispersed in a carrier solvent.

17. The method according to claim 16 wherein said vinyl ether in said first coating is selected from the group consisting of monovinyl ether of 2-ethyl-1-hexanol, monovinyl ether of n-dodecanol, divinyl ether of 1,4-cyclohexanedimethanol and divinyl ether of H-stopped poly(tetrahydrofuran).

18. The method according to claim 16 wherein said radiation curable silicone copolymer in said first coating is an epoxy silicone copolymer.

19. The method according to claim 16 wherein said photoinitiator in said first coating is selected from the group consisting of diaryliodonium, tetrakis (pentafluorophenyl) borate salt, bis(dodecylphenyl) iodonium hexafluoroantimonate, bis(dodecylphenyl) iodonium hexafluoroarsenate and (4-octyloxyphenyl)(phenyl) iodonium hexafluoroantimonate.

20. The method according to claim 16 wherein said secondary silicone component in said first coating is selected from the group consisting of polydimethylsiloxane, methyltri-methoxy silane, methyltriacetoxysilane, silicone chloride, vinyl trimethoxysilane, bis(trimethoxysilyl) propyl amine, gamma-ureidopropyl trimethoxy silane and organosilane ester tri (3-(trimethoxysilyl) propyl) isocyanurate.

21. The method according to claim 16 wherein said secondary silicone component in said second coating is selected from the group consisting of polydimethylsiloxane, methyltri-methoxy silane, methyltriacetoxysilane, silicone chloride, vinyl trimethoxysilane, bis(trimethoxysilyl) propyl amine, gamma-ureidopropyl trimethoxy silane and organosilane ester tri (3-(trimethoxysilyl) propyl) isocyanurate.

22. The method according to claim 16 wherein said secondary silicone component in said second coating is a mixture of at least two silicone components selected from the group consisting of polydimethylsiloxane, methyltri-methoxy silane, methyltriacetoxysilane, silicone chloride, vinyl trimethoxysilane, bis(trimethoxysilyl) propyl amine, gamma-ureidopropyl trimethoxy silane and organosilane ester tri (3-(trimethoxysilyl) propyl) isocyanurate.